CLAIMS

1. A magneto-optical head comprising:

a slider held in facing relation to a storage medium;

an objective lens supported by the slider for concentrating light rays;

a coil provided with a center through which the light rays pass, the coil including a first conductive pattern and a second conductive pattern which is closer to the storage medium than the first conductive pattern is; and

a transparent insulating layer enclosing the coil;

wherein the second conductive pattern is smaller in inner diameter than the first conductive pattern, the insulating layer filling the center of the coil.

2. The magneto-optical head according to claim 1, further comprising a transparent substrate arranged between the lens and the storage medium, the coil being provided on the substrate.

3. The magneto-optical head according to claim 2, wherein the substrate and the insulating layer have substantially same refractive indexes.

4. The magneto-optical head according to claim 2, wherein the substrate is provided with via-holes connected to the first and the second conductive patterns.

5. The magneto-optical head according to claim 2, wherein the first conductive pattern is embedded in the substrate.

6. The magneto-optical head according to claim 1, wherein the coil is provided on the lens.

7. The magneto-optical head according to claim 1, wherein each of the first and the second conductive patterns is provided with a plurality of turns.

8. The magneto-optical head according to claim 7, wherein the turns of the first conductive pattern are offset radially of the coil from the turns of the second conductive pattern.

9. The magneto-optical head according to claim 7, wherein the coil includes a connecting piece for connecting an inner turn of the first conductive pattern to an inner turn of the second conductive pattern.

10. The magneto-optical head according to claim 7, wherein the coil includes a first outgoing line connected to an outer turn of the first conductive pattern, and a second outgoing line connected to an outer turn of the second conductive pattern.

11. The magneto-optical head according to claim 1, wherein the coil includes third and fourth conductive patterns

arranged between the first and the second conductive patterns, the third and the fourth conductive patterns being smaller in inner diameter than the first conductive pattern but greater in inner diameter than the second conductive pattern.

12. The magneto-optical head according to claim 11, wherein the coil is provided with a first connecting piece for connecting an inner end of the first conductive pattern to an inner end of the third conductive pattern, a second connecting piece for connecting an outer end of the third conductive pattern to an outer end of the fourth conductive pattern, and a third connecting piece for connecting an inner end of the fourth conductive pattern to an inner end of the second conductive pattern.

13. A method of making a coil for a magneto-optical head comprising the steps of:

forming a first conductive pattern on a transparent substrate;

forming a first transparent insulating layer filling a center of the first conductive pattern;

forming a second conductive pattern on the first insulating layer, the second conductive pattern being smaller in inner diameter than the first conductive pattern; and

forming a second transparent insulating layer filling a center of the second conductive pattern.

14. The method according to claim 13, further comprising the step of flattening a surface of the first insulating layer before the second conductive pattern is formed.

15. The method according to claim 13, further comprising the step of forming a first recess in the substrate for embedding the first conductive pattern in the substrate.

16. The method according to claim 13, wherein the step of forming the second conductive pattern comprises the sub-steps of:

forming on the first insulating layer a third transparent insulating layer provided with a hole;

forming a fourth transparent insulating layer to cover the third insulating layer;

etching the fourth insulating layer and a part of the first insulating layer via the hole of the third insulating layer, so that a second recess corresponding to the second conductive pattern is formed in the fourth insulating layer, and that a through-hole communicating with the second recess is formed in the first and the third insulating layers; and

supplying a conductive material for filling the second recess and the through-hole.